

WHAT IS CLAIMED IS:

1. A navigation system comprising:

a road map data storage for storing map data including road attribute data;

a route calculation unit for calculating a route from a current position to a destination by using the map data stored in the road map data storage unit, wherein the route includes a road to be followed from the current position;

a route guidance unit for performing a route guidance to the destination in accordance with the route calculated by the route calculation unit; and

a change unit for changing a distance of the road to be followed included in the route according to a road attribute of the road to be followed, wherein the road attribute is included in the road attribute data stored in the road map data storage unit,

wherein, when the route calculation unit sets a branch point for branching to another road from the road to be followed, the branch point is set after the distance is exceeded.

2. The navigation system of Claim 1,

wherein the map data includes link data specifying roads; and

wherein the attribute data is associated with each link in the link data.

3. The navigation system of Claim 1,

wherein the road map data storage unit stores a number of lanes for a road included in the map data as the road attribute data; and

wherein the change unit changes the distance in accordance with a number of lanes for the road to be followed.

4. The navigation system of Claim 2,

wherein, when the road to be followed has at least one exclusive lane of right-turn and left-turn lanes, the change unit includes the exclusive lane in the number of lanes for the road to be followed.

5. The navigation system of Claim 2,

wherein, when the destination is not found along the road to be followed and the route calculation unit needs to calculate a route branching to another road from the road to be followed, and when the road to be followed has an exclusive right-turn or left-turn lane along a direction of branching to another road from the road to be followed, the change unit includes the exclusive lane in the number of lanes.

6. The navigation system of Claim 1, further comprising:

a position detection unit for detecting a current position; and

a lane position specification unit for specifying a lane

position on a road at the current position detected by the position detection unit by using the map data,

wherein, when the destination is not found along the road to be followed and the route calculation unit needs to calculate a route branching to another road from the road to be followed, the change unit assumes a number of lanes that are moved for branching to another road from the current position to be a number of lanes immediately before a corresponding branch point, and

wherein the change unit changes the distance in accordance with the assumed number of lanes immediately before the corresponding branch point.

7. The navigation system of Claim 1,

wherein the change unit predetermines a reference distance that is a distance of the road to be followed in accordance with the number of lanes for the road to be followed; and

wherein the reference distance is configured to increase as the number of lanes increases.

8. The navigation system of Claim 7,

wherein the change unit predetermines the reference distance in accordance with the number of lanes of for the road to be followed at the current position.

9. The navigation system of Claim 7,

wherein the change unit predetermines the reference distance in accordance with the number of lanes at a point capable of branching to another road from the road to be followed.

10. The navigation system of Claim 7,

wherein, when each of portions constituting the road to be followed has an individual number of lanes and a ratio of a length of the each portion to the reference distance according to the individual number of lanes, the ratios for the portions are summed up until a specified value is reached in accordance with a sequence of the portions toward the destination from the current position, the change unit determines a point on the road to be followed to reach the specified value and assumes a distance from the current position to the point to be the reference distance.

11. The navigation system of Claim 1,

wherein the road map data storage unit stores a road width for a road included in the map data as the road attribute data; and

wherein the change unit changes the distance in accordance with a road width for the road to be followed.

12. The navigation system of Claim 1,

wherein the change unit predetermines a reference

distance that is a distance of the road to be followed in accordance with the road width for the road to be followed; and

wherein the reference distance is configured to increase as the road width increases.

13. The navigation system of Claim 12,

wherein the change unit predetermines the reference distance in accordance with the road width of for the road to be followed at the current position.

14. The navigation system of Claim 12,

wherein the change unit predetermines the reference distance in accordance with the road width at a point capable of branching to another road from the road to be followed.

15. The navigation system of Claim 12,

wherein, when each of portions constituting the road to be followed has an individual road width and a ratio of a length of the each portion to the reference distance according to the individual road width, the ratios for the portions are summed up until a specified value is reached in accordance with a sequence of the portions toward the destination from the current position, the change unit determines a point on the road to be followed to reach the specified value and assumes a distance from the current position to the point to be the reference distance.

16. The navigation system of Claim 1, further comprising:

a traffic congestion information acquisition unit for acquiring, from outside, traffic congestion information including a position, a length, and a traffic congestion level of a congested road,

wherein, when the road to be followed includes the congested road acquired by the traffic congestion information acquisition unit, the change unit changes the distance of the road to be followed in accordance with the traffic congestion information corresponding to the congested road.

17. The navigation system of Claim 1,

wherein the road map data storage unit stores a road type for a road included in the map data as the road attribute data; and

wherein the change unit changes the distance in accordance with a road type for the road to be followed.

18. The navigation system of Claim 1,

wherein the change unit changes the distance of the road to be followed in accordance with a number of points to intersect, branch to, and join another road from the road to be followed.

19. The navigation system of Claim 1, further comprising:

a vehicle speed detection unit for detecting a vehicle speed of a vehicle having the navigation system,

wherein the change unit changes the distance of the road to be followed in consideration for the vehicle speed detected by the vehicle speed detection unit.